UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/301,885	04/29/1999	DARRELL R. COMMANDER	1857-00200	6193

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EXAMINER
ALI, SYED J

ART UNIT	PAPER NUMBER
2127	13

DATE MAILED: 06/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/301,885	COMMANDER, DARRELL R.
	Examiner	Art Unit	
	Syed J Ali	2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _12 March 2004_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-24 and 27-30_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-4,6,7,9-13,15-17,20-24 and 27-30_ is/are rejected.

7)☒ Claim(s) _5,8,14,18 and 19_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Application/Control Number: 09/301,885

Art Unit: 2127

DETAILED ACTION

1.   This office action is in response to the appeal brief filed March 12, 2004. Claims 1-24 and 27-30 are presented for examination.

2.   In view of newly found prior art references, the prosecution of the subject application is hereby reopened. Examiner regrets the delay in the citation of the references.

3.   The text of those sections of Title 35, U.S. code not included in this office action can be found in a prior office action.

Claim Rejections - 35 USC § 103

4.   Claims 1-3, 7, 9-11, 13, 15, 20-24, 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. (USPN 5,325,525) (hereinafter Shan).

5.   As per claim 1, Shan teaches the invention substantially as claimed, including a parallel processing network (Abstract lines 1-2) in which one or more processes can be spawned, comprising:

a plurality of computers coupled together by a communications link (col. 1 line 37 - col. 2 line 2); and

process spawning logic included in one of said plurality of computers that automatically spawns processes and that determines whether sufficient processors are available to spawn the processes and, if not, spawns a reduced number of processes based on the number of available

processors (Abstract lines 10-14; Fig. 1 elements 19, 25, 27, and 28; col. 3 lines 25-40; col. 5 lines 41-63; Claims 1 and 10).

6.   Shan does not specifically teach that the processes are spawned in response to user specified criteria. However, Shan does teach that the spawned processes are based on a task and subtask resource schedule, which is entered by a user (Abstract lines 2-4 and 10-14; Fig. 1 element 15; Claim 1).

7.   It would have been obvious to one of ordinary skill in the art that the scheduling performed in Shan is based on user specified criteria, although such is not explicitly stated. For example, the database queries that are scheduled against processing resources by Shan is initially based on an infinite number of resources. This initial query is entered by a user, wherein the scheduler then takes over and ensures that the system can satisfy the request. This is done by evaluating the number of available processors or processing resources, and if the number of available processors or processing resources are unavailable to satisfy the request, certain measures are taken such that the query may be processed. Step (c) in Claim 10 sets forth preparing a schedule to process the subqueries based on the available number of processors. If the number of processors is unsatisfactory, the goal execution time is revised, as well as adjusting the schedule to match the number of available processors. Thus, in this case, the user specified criteria is the query and subqueries, wherein a reduced number of queries (processes) are scheduled if there are insufficient processing resources. Hereinafter, this discussion is considered relevant to all subsequent descriptions of how Shan spawns a reduced number of processes in response to user specified criteria.

8.   As per claim 2, Shan teaches the invention as claimed, including the parallel processing

network of claim 1 wherein the communications link includes a switch (col. 1 line 37 - col. 2 line

2).

9.   As per claim 3, Shan teaches the invention as claimed, including the parallel processing

network of claim 1 wherein the user specified criteria includes a number of processes the

spawning logic should spawn (Abstract lines 10-14; Fig. 1 elements 19, 25, 27, and 28; col. 3

lines 25-40; col. 4 line 63 - col. 5 line 32; col. 5 lines 41-63; Claims 1 and 10).

10.   As per claim 7, Shan teaches the invention as claimed, including the parallel processing

network of claim 3 wherein the user specified criteria includes a resource parameter (Abstract

lines 10-14; Fig. 1 elements 19, 25, 27, and 28; col. 3 lines 25-40; col. 4 line 63 - col. 5 line 32;

col. 5 lines 41-63; Claims 1 and 10).

11.   As per claim 9, Shan teaches the invention as claimed, including the parallel processing

network of claim 1 wherein said process spawning logic compares the user specified criteria to

network features (col. 4 line 63 - col. 5 line 32).

12.   As per claim 10, Shan teaches the invention as claimed, including the parallel processing

network of claim 9 wherein the network features are maintained in a process scheduler included

in one of said plurality of computers (col. 4 line 63 - col. 5 line 32).

13.   As per claim 11, Shan teaches the invention as claimed, including the parallel processing

network of claim 9 wherein the network features include an identification of which of said

plurality of computers is operational and which are nonoperational and the spawning logic (col. 4

line 63 - col. 5 line 32).

14.   As per claim 13, Shan teaches the invention as claimed, including the parallel processing

network of claim 9 wherein each of said plurality of computers includes a network interface

resource and the network features include the type of network interface resource (col. 1 line 37 -

col. 2 line 2; col.4 line 63 - col. 5 line 32).

15.   As per claim 15, Shan teaches the invention substantially as claimed, including a parallel

processing network, comprising:

       a plurality of processors coupled together by a communications link (col. 1 line 37 - col.

2 line 2);

       a process scheduler accessible by at least one of said processors, said process scheduler

maintains a list of network features (col. 4 line 63 - col. 5 line 32);

       spawning logic coupled to said process scheduler, said spawning logic receives a set of

parameters from a user that determine how processes are to be spawned by the root machine, the

set of parameters including a user desired number of processes to be spawned, said spawning

logic determines whether a sufficient number of processors are available to permit the user

desired number of processes to be spawned in accordance with the user specified parameters and,

if not, spawns a reduced number of processes based on the number of available processors

(Abstract lines 10-14; Fig. 1 elements 19, 25, 27, and 28; col. 3 lines 25-40; col. 5 lines 41-63;

Claims 1 and 10).

16.   As per claim 20, Shan teaches the invention substantially as claimed, including a

computer readable storage medium for storing an executable set of software instructions which,

when inserted into a host computer system, is capable of controlling the operation of the host

computer, said software instructions being operable to automatically spawn parallel processes in

a parallel processing network, comprising:

      a means for receiving user specified criteria (see paragraphs 6 and 7 above);

      a means for reading a process scheduler to access a list of features associated with the

parallel processing network (col. 4 line 63 - col. 5 line 32);

      a means for comparing the list of network features to the user specified criteria (col. 4

line 63 - col. 5 line 32); and

      a means for spawning a number of processes that is reduced based on the number of

available CPUs (Abstract lines 10-14; Fig. 1 elements 19, 25, 27, and 28; col. 3 lines 25-40; col.

5 lines 41-63; Claims 1 and 10).

17.   As per claim 21, Shan teaches the invention as claimed, including the computer readable

storage medium of claim 20 wherein the user specified criteria includes a desired number of

processes to be spawned and said means for spawning processes includes a means for spawning

the user desired number of processes if said means for comparing determines that the parallel

processing network has sufficient features in accordance with the user specified criteria (Abstract

lines 10-14; Fig. 1 elements 19, 25, 27, and 28; col. 3 lines 25-40; col. 5 lines 41-63; Claims 1 and 10).

18.   As per claim 22, Shan teaches the invention as claimed, including the computer readable storage medium of claim 21 wherein said means for spawning processes includes spawning fewer than the user desired number of processes if said means for comparing determines that the parallel processing network has insufficient features in accordance with the user specified criteria (Abstract lines 10-14; Fig. 1 elements 19, 25, 27, and 28; col. 3 lines 25-40; col. 5 lines 41-63; Claims 1 and 10).

19.   As per claim 23, Shan teaches the invention as claimed, including the computer readable storage medium of claim 21 wherein said means for spawning processes includes spawning fewer than the user desired number of processes if said means for comparing determines that the parallel processing network has insufficient CPUs to spawn the user desired number of processes (Abstract lines 10-14; Fig. 1 elements 19, 25, 27, and 28; col. 3 lines 25-40; col. 5 lines 41-63; Claims 1 and 10).

20.   As per claim 24, Shan teaches the invention substantially as claimed, including a method of creating processes in a multi-processor network, comprising:

        receiving criteria that determine how the processes are to be created, the criteria including a desired number of processes to be created (see paragraphs 6 and 7 above);

comparing criteria to a database of network features to determine if there are a sufficient number of processors to accommodate the desired number of processes (col. 3 lines 25-40; col. 5 lines 41-63); and

creating processes if a sufficient number of processors are available, and if not, creating a reduced number of processes (Abstract lines 10-14; Fig. 1 elements 19, 25, 27, and 28; col. 3 lines 25-40; col. 5 lines 41-63; Claims 1 and 10).

21.   As per claim 29, Shan teaches the invention substantially as claimed, including a method for spawning processes in a multiprocessor network, comprising:

specifying whether processes are to be spawned automatically to match a set of criteria or spawned in accordance with a process file group (col. 7 lines 29-67);

spawning processes to match criteria if automatic spawning is specified (col. 3 lines 25-40; col. 5 lines 41-63; col. 7 lines 29-67);

spawning processes in accordance with the process group file if so specified (col. 3 lines 25-40; col. 5 lines 41-63; col. 7 lines 29-67); and

spawning a reduced number of processes automatically or in accordance with the process group file based on a number of available processors (Abstract lines 10-14; Fig. 1 elements 19, 25, 27, and 28; col. 3 lines 25-40; col. 5 lines 41-63; Claims 1 and 10).

22.   As per claim 30, Shan teaches the invention as claimed, including the method of claim 29 further including determining whether the multiprocessor network matches the set of criteria if automatic spawning is specified (col. 3 lines 25-40; col. 5 lines 41-63; col. 7 lines 29-67).

23.   **Claims 4, 6, 12, 16-17, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shan in view of Billups, III (USPN 6,173,246) (hereinafter Billups).**

24.   As per claim 4, Billups teaches the invention as claimed, including the following limitations not shown by Shan:

the parallel processing network of claim 3 wherein the user specified criteria also includes a model parameter (col. 9 lines 40-55).

25.   It would have been obvious to one of ordinary skill in the art to combine Shan with Billups since Billups provides the added benefit of allowing a CPU type to be specified. This feature allows the parallel processing network to ensure that processes being spawned are spawned in accordance with CPUs that they are capable of executing on. For instance, if a process is spawned that can only be run on a specific type of machine, spawning a process to an incompatible machine would be useless. By indicating the CPU type, a predetermination can be made as to whether or not the process will execute properly.

26.   As per claim 6, Billups teaches the invention as claimed, including the parallel processing network of claim 4 wherein each of the plurality of computers includes a CPU and the model parameter refers to the type of CPU (col. 9 lines 40-55).

27.   As per claim 12, Billups teaches the invention as claimed, including the parallel processing network of claim 9 wherein each of said plurality of computers includes a CPU and the network features include the model of CPU (col. 9 lines 40-55).

28.   As per claim 16, Billups teaches the invention as claimed, including the parallel processing network of claim 15 wherein the user parameters include a particular model of processor to which the processes are to be spawned (col. 9 lines 40-55).

29.   As per claim 17, Shan teaches the invention as claimed, including the parallel processing network of claim 16 wherein the user parameters include a particular type of network resource (col. 1 line 37 - col. 2 line 2; col.4 line 63 - col. 5 line 32).

30.   As per claim 27, Billups teaches the invention as claimed, including the method of claim 24 wherein receiving criteria includes receiving criteria that also includes a model of processor and a resource type for running processes (col. 9 lines 40-55).

31.   As per claim 28, Shan teaches the invention as claimed, including the method of claim 27 wherein the resource type includes a network interface resource type (col. 1 line 37 - col. 2 line 2; col.4 line 63 - col. 5 line 32).

Allowable Subject Matter

32.   Claims 5, 8, 14, and 18-19 are objected to as being dependent upon rejected base claims,

but would be allowable if rewritten in independent form including all of the limitations of the

base claims and any intervening claims.

Response to Arguments

33.   Applicant's arguments with respect to claims 1-24 and 27-30 have been considered but

are moot in view of the new grounds of rejection.

Conclusion

34.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Jhingran et al. (USPN 5,745,746) teaches the elimination of excess processes to improve

processing performance and ensure that database queries are processed quickly and efficiently.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Syed J Ali whose telephone number is (703) 305-8106. The

examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai T An can be reached on (703) 305-9678. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Syed Ali
May 28, 2004

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